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## **Steel Fence Posts—Field and Line Type**

**(Produced from Hot-Rolled Steel Sections)**

A RECORDED VOLUNTARY STANDARD OF THE TRADE

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### **COMMODITY STANDARDS**

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Industry and Commerce, Bureau of Foreign and Domestic Commerce, and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office and the Department of Commerce field offices.

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**UNITED STATES DEPARTMENT OF COMMERCE**

**Charles Sawyer, Secretary**



U. S. DEPARTMENT OF COMMERCE

CHARLES SAWYER, Secretary

BUREAU OF FOREIGN AND DOMESTIC  
COMMERCE

Office of Industry and Commerce

H. B. McCoy, Director

IN COOPERATION WITH  
NATIONAL BUREAU OF STANDARDS

A. V. ASTIN, ACTING DIRECTOR

# Steel Fence Posts — Field and Line Type

## (Produced from Hot-Rolled Steel Sections)

[Effective December 1, 1951]

### 1. PURPOSE

1.1 The purpose of this commercial standard for steel fence posts is to establish an attainable standard of quality, as well as recognized standard sections, and sizes and manufacturing tolerances considered standard for the industry; and to provide effective designation of form, size, and properties as a basis of common understanding between manufacturers, distributors, and users of steel fence posts.

### 2. SCOPE

2.1 This commercial standard provides specifications for form, dimensions, weights, finish, and industry practices for steel fence posts of field and line type which currently are in general use and demand.

### 3. DEFINITIONS AND INDUSTRY PRACTICES

3.1 Posts which support the straightaway body of the fence shall be designated as *line posts*. Such other posts as are needed at the end or corner of the fence and at gates shall be designated as *end*, *corner*, and *gate posts*.

3.2 For the purpose of ordering, it is the industry practice to designate the quantity of posts in units, the nominal weight per foot, the length in feet and inches, and the acceptable section if restriction is intended in this respect.

3.3 It is the general practice of manufacturers to ship the exact quantity of posts ordered by the purchaser.

3.4 Line posts are furnished with attached anchor plates unless agreement is made between buyer and seller for omission of these members.

3.5 To facilitate handling in shipment, in distributor's stock, and by the purchaser, posts are customarily tied as follows:

- (a) Line posts in lots of five posts to a bundle. Orders should be for multiples of five posts.
- (b) Angle-type end, corner, and gate posts have all the component parts of one post assembled in a bundle.

3.6 Certain methods and customs followed in the industry as regular practice, in the absence of agreement to the contrary between manufacturers and purchasers, are:

- (a) Inspection and tests for acceptance of fence posts, when required, shall be made prior to shipment from the plant of the manufacturer.
- (b) Manufacturers generally make free replacement of defective fence posts. Posts should not be returned for any reason without instructions from the manufacturer.

3.7 The basis of sale is usually on piece count rather than on weight of fence posts. Nominal weights of finished posts as published by the manufacturers are used for transportation data.

#### 4. REQUIREMENTS

##### 4.1 *Type of post.*

4.1.1 Line posts shall be Tee, U, Y, channel, or other suitable section, and shall have corrugations, knobs, notches, holes, or studs so placed and constructed as to engage a substantial number of fence line wires in proper position. Posts may be punched with holes in such position and of such size as will not impair the strength of the post. Posts with punched tabs used for fastening wires are not standard because of the risk of injury to fence wires when such tabs are crimped around line wires, and of the tendency of tabs to fracture upon removal and refastening of fence.

4.1.2 End, corner, and gate post assemblies shall be angle sections consisting of  $2\frac{1}{2}$ - by  $2\frac{1}{2}$ - by  $\frac{1}{4}$ -inch uprights and the required number of braces, either 2- by 2- by  $\frac{1}{4}$ -inch or an alternate of approximately equal weight, such as a  $2\frac{1}{2}$ - by  $2\frac{1}{2}$ -inch

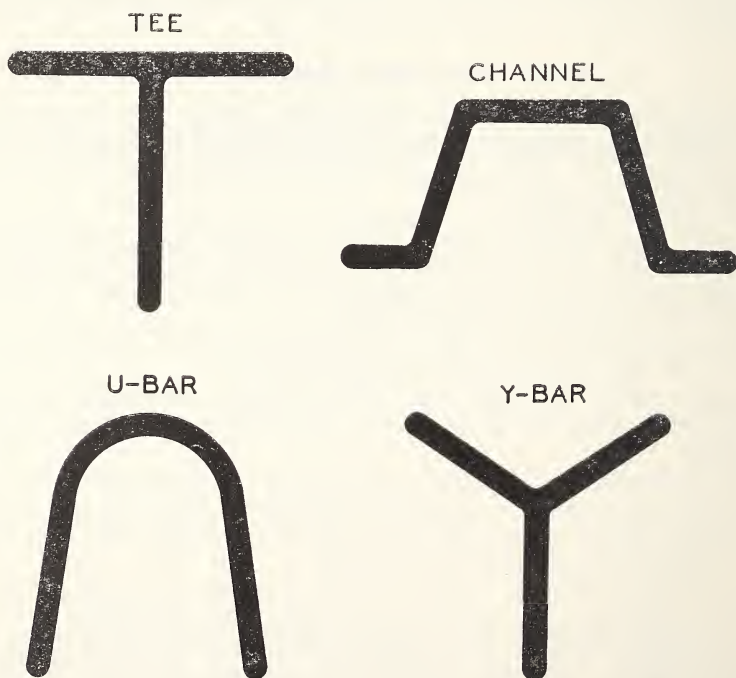


FIGURE 1. *Typical cross sections of line posts.*

angle of appropriate thickness. For joining, the uprights and braces are supplied with the necessary holes and with bolts of standard commercial quality, or other satisfactory substitute such as castings.

#### 4.2 Typical sections.

4.2.1 Sketches shown in figure 1 are suggestive of typical cross sections of line posts commonly supplied. Sizes shown are approximately full scale; however, both over-all and thickness dimensions will vary with individual post designs. All sections shall conform to the standard nominal weight of 1.33 pounds per foot.

4.2.2. Sections shown do not illustrate features for attaching fence wire and preventing vertical displacement, such as rolled-in lugs, notches, studs, or corrugations, or punched oval, round, or slotted holes.

#### 4.3 Nominal weight.

4.3.1 Line posts shall have a nominal weight of 1.33 pounds per foot, exclusive of anchor plate.

4.3.2 Angle-type end, corner, and gate posts shall have a nominal weight of 4.10 pounds per foot for upright members, and bracing members shall have a nominal weight of 3.19 pounds per foot.

4.4 Length.—Standard lengths are as given in table 1.

TABLE 1. *Standard lengths*

	Feet
Line posts.....	5, 5½, 6, 6½, 7, 7½, 8.
End, gate, and corner posts.....	7, 8, 9.
End, gate, and corner-post braces.....	7, 8, 9.

#### 4.5 Material.

4.5.1 Posts shall be fabricated from hot-rolled steel sections meeting either of the requirements given in table 2.

TABLE 2. *Metal quality*

Grade	Tensile properties	
	Yield strength	Ultimate strength
	lb/sq in. (min)	lb/sq in. (min)
Hot-rolled carbon steel—minimum carbon content 0.35 percent..	40,000	70,000
Hot-rolled rail steel <sup>1</sup> .....	50,000	80,000

<sup>1</sup>As defined in Commercial Standard CS150-48, rail steel products shall be rolled from standard tee-section steel rails. No other materials, such as those known by the terms "rerolled," "rail steel equivalent," and "rail steel quality," shall be substituted.

#### 4.6 Style of attachment.

4.6.1 Form and method of attachment of wire to post shall be of a type that will effectively prevent line wires from slipping vertically.



#### 4.7 Formed wire fasteners.

4.7.1 Each line post shall be furnished with not less than five suitable galvanized-wire fasteners or clamps, of not less than 0.120 inch in diameter, for attaching the fence wires to the post. Ordinary wire staples will not be considered suitable fasteners.

#### 4.8 Anchor plates.

4.8.1 Anchor plates on line posts shall weigh 0.67 pound or more each, and shall be tapered to facilitate driving. Anchor plates shall be clamped, welded, or riveted to the posts in a substantial manner to prevent displacement of the plates when posts are driven.

#### 4.9 Finish.

4.9.1 Painted posts shall be cleaned of all loose scale prior to finishing, and one or more coats of high-grade, weather-resistant, special steel paint or enamel shall be applied and baked.

4.9.2 Galvanized posts shall be galvanized by the hot-dip process, and shall have a uniform coating of Prime Western spelter or better grade.

#### 4.10 Tolerances.

4.10.1 Permissible variation in total weight of posts in any one shipment shall be a maximum of  $3\frac{1}{2}$  percent over or under the nominal weights shown in tables 3 and 4.

TABLE 3. Nominal weights of line posts

Post length	Unit weight <sup>1</sup>
<i>ft</i>	<i>lb</i>
5.....	7.32
5½.....	7.99
6.....	8.65
6½.....	9.32
7.....	9.98
7½.....	10.65
8.....	11.31

<sup>1</sup> Includes anchor plates and paint.

TABLE 4. Nominal weights of end, gate, and corner assemblies

Post assembly	Length	Unit weight <sup>1</sup>
	<i>ft</i>	<i>lb</i>
End or gate (one brace).....	7	51
Corner (two braces).....	7	73
End or gate (one brace).....	8	58
Corner (two braces).....	8	84
End or gate (one brace).....	9	66
Corner (two braces).....	9	94

<sup>1</sup> Includes weight of paint and bolts.

4.10.2 Permissible variation in length shall be a maximum of 1 inch under and 2 inches over the designated length of the post given in table 1.

4.10.3 Excessive bow, camber, twist, or other injurious defects in posts shall be considered cause for rejection of such posts.

## 5. CERTIFICATION

5.1 As assurance that posts supplied comply with all requirements of this commercial standard, manufacturers may include the following statement in conjunction with their name and address on labels:

Complies with CS184-51, as developed by the trade under the procedure of the Commodity Standards Division, and issued by the U. S. Department of Commerce.

## 6. EFFECTIVE DATE

6.1 Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this commercial standard was issued by the United States Department of Commerce, effective from December 1, 1951.

EDWIN W. ELY,

*Chief, Commodity Standards Division.*

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## HISTORY OF PROJECT

On October 24, 1950, the Rail Steel Bar Association requested the cooperation of the Commodity Standards Division of the Department of Commerce in the establishment of a commercial standard for steel fence posts—field and line type (produced from hot-rolled steel sections).

A draft of the proposed commercial standard was submitted on December 27, 1950, to manufacturers, and to a number of technical, distributor, and consumer organizations for advance review and comment. All comments were carefully considered and the draft adjusted to represent the composite views of all interested groups.

The recommended commercial standard was circulated on September 4, 1951, to the trade for consideration and acceptance. Upon receipt of official acceptances estimated to represent a satisfactory majority of the production by volume, and in the absence of active valid opposition, the standard was promulgated on November 1, 1951, as Commercial Standard 184-51, to become effective for new production on December 1, 1951.

Project manager: E. C. Barrett, Commodity Standards Division, Office of Industry and Commerce.

Technical adviser: L. R. Sweetman, Mechanics Division, National Bureau of Standards.

## STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to

the Commodity Standards Division, Office of Industry and Commerce, U. S. Department of Commerce, which acts as secretary for the committee.

H. W. BEATTY, Inland Steel Co., 38 South Dearborn Street, Chicago 3, Ill. (chairman).

G. H. ACKERMAN, Missouri Rolling Mill Corp., 6800 Manchester Avenue, St. Louis 10, Mo.

HENRY GIESE, Iowa State College, Ames, Iowa.

J. W. PATTERSON, American Steel & Wire Co., Rockefeller Building, Cleveland 13, Ohio.

HAROLD PIPER, Minot Builders Supply, Minot, N. Dak.

J. D. SMITH, George A. Clark Co., Minneapolis, Minn.

R. D. STEWART, United Co-Operatives, Inc., Alliance, Ohio.

N. O. WOOD, JR., U. S. Department of Interior, Washington 25, D. C.

L. E. YENTZER, Calumet Steel Division, Borg-Warner Corp., 310 South Michigan Avenue, Chicago 4, Ill.



## ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date \_\_\_\_\_

Commodity Standards Division,  
Office of Industry and Commerce,  
U. S. Department of Commerce,  
Washington 25, D. C.

Gentlemen:

We believe that this Commercial Standard constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

Production <sup>1</sup>      Distribution <sup>1</sup>      Purchase <sup>1</sup>      Testing <sup>1</sup>  
of steel fence posts—field and line type (produced  
from hot-rolled steel sections).

We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer \_\_\_\_\_  
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer \_\_\_\_\_

Organization \_\_\_\_\_  
(Fill in exactly as it should be listed)

Street address \_\_\_\_\_

City, zone, and State \_\_\_\_\_

<sup>1</sup> Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

## TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

## ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, testing, or purchase of steel fence posts—field and line type (produced from hot-rolled steel sections). In accepting the standard, they reserved the right to depart from it as they individually deem advisable. It is expected that articles which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

### FIRMS AND OTHER INTERESTS

- Adjusta-Post Manufacturing Co., Akron, Ohio.  
 Ajax Fence Works, Fort Madison, Iowa.  
 Albany Hardware & Iron Co., Albany, N. Y.  
 Allen & Jemison Co., Tuscaloosa, Ala.  
 Amarillo Hardware Co., Amarillo, Tex.  
 American Hardware & Equipment Co., Charlotte, N. C.  
 American Steel & Wire Co., Cleveland, Ohio.  
 American Wholesale Hardware Co., Long Beach, Calif.  
 Arizona Highway Department, Phoenix, Ariz.  
 Atlantic Steel Co., Atlanta, Ga.  
 Baltimore & Ohio Railroad Co., Baltimore, Md.  
 Barnstable Ware Feed & Supply Co., Inc., Hillsboro, Ill.  
 Barrett Hardware Co., Joliet, Ill.  
 Bay City Hardware Co., Bay City, Mich.  
 Belvidere Lumber Co., Belvidere, Nebr.  
 Bliss Steel Products Corp., East Syracuse, N. Y.  
 Bluefield Supply Co., Bluefield, W. Va.  
 Botsford Lumber Co., Winona, Minn.  
 Bowser Morner Testing Laboratories, Dayton, Ohio.  
 Brown-Camp Hardware Co., Des Moines, Iowa.  
 Buffalo Steel Division, H. K. Porter Co., Inc., Tonawanda, N. Y.  
 Buhrman-Pharr Hardware Co., Texarkana, Ark.  
 Builders Supply Co., San Antonio, Tex.  
 Busboom & Rauh, Salina, Kans.  
 Calumet Steel Division, Borg-Warner Corp., Chicago, Ill.  
 Cameron, Wm., & Co., Waco, Tex.  
 Canton Hardware Co., Canton, Ohio.  
 Capital City Culvert Co., Madison, Wis.  
 Cataphote Corp., Toledo, Ohio.  
 Ceco Steel Products Corp., Chicago, Ill.  
 Central of Georgia Railway Co., Savannah, Ga.  
 Central Hardware Co., St. Louis, Mo.  
 Central Supply Co., Wilmington, Ohio.  
 Centre Hardware Co., Roslindale, Mass.  
 Charleston Hardware Co., Charleston, W. Va.  
 Charlottesville Hardware Co., Charlottesville, Va.  
 Cloverdale Hardware & Lumber Co., Cloverdale, Ind.  
 Coates, Henry T., & Associates, New York, N. Y.  
 Colladay, Frank, Hardware Co., Hutchinson, Kans.  
 Connors Steel Co., Division of H. K. Porter Co., Inc., Birmingham, Ala.  
 Continental Steel Corp., Kokomo, Ind.  
 Co-op Feed & Farm Supply, Superior, Wis.  
 Corpus Christi Hardware Co., Corpus Christi, Tex.  
 Cox Fence Company of Houston, Inc., Houston, Tex.  
 Danser Hardware & Supply Co., Weston, W. Va.  
 Delaware Hardware Co., Wilmington, Del.  
 Detroit Department of Public Works, Detroit, Mich.  
 Dutton-Lainson Co., Hastings, Nebr.  
 Erie Concrete & Steel Supply Co., Erie, Pa.  
 Fairbury Supply Co., Fairbury, Nebr.  
 Farm & Home Supply, Inc., Findlay, Ohio.  
 Farmers Elevator Service Co., Ralston, Iowa.  
 Farmers Store Co., Eau Claire, Wis.  
 Farmer's Supply Cooperative, Ontario, Oreg.  
 Farmers Union State Exchange, Omaha, Nebr.  
 Farwell Ozmun Kirk & Co., St. Paul, Minn.  
 Fones Bros. Hardware Co., Little Rock, Ark.  
 Fort Wayne Builders Supply Co., Fort Wayne, Ind.  
 Franklin Steel Division, Borg-Warner Corp., Franklin, Pa.  
 Frederick Trading Co., Frederick, Md.  
 Fromm Bros., Inc., Hamburg, Wis.  
 Fuller Goodman Co., Oshkosh, Wis.  
 Fulton Supply Co., Atlanta, Ga.  
 Gadsden Hardware Co., Gadsden, Ala.  
 Garnich, E., & Sons Hardware Co., Ashland, Wis.  
 Gates Hardware & Supply Co., Tulsa, Okla.  
 Gethmann Concrete & Material Co., Gladbrook, Iowa.  
 Harris Hardware Co., Washington, N. C.  
 Henderson & Baird Hardware Co., Greenwood, Miss.  
 Herr & Co., Inc., Lancaster, Pa.  
 Ilginbotham-Pearlstone Hardware Co., Dallas, Tex.  
 Hobbs, W. H., Supply Co., Eau Claire, Wis.  
 Iffeld, Charles Co., Las Vegas, N. Mex.  
 Illinois Division of Highways, Springfield, Ill.  
 Illinois Lumber Co., Inc., Edwardsville, Ill.  
 Illinois, University of, College of Agriculture, Urbana, Ill.  
 Imperial Hardware Co., El Centro, Calif.  
 Inland Steel Co., Chicago, Ill.  
 Interstate Hardware Co., Inc., Bristol, Tenn.  
 Janesville Fence & Post Co., Janesville, Wis.  
 Janney Semple Hill & Co., Minneapolis, Minn.  
 Johnson & Co., Langdale, Ala.  
 Kay Dee Feed Co., Sioux City, Iowa.  
 Keith, Simmons Co., Inc., Nashville, Tenn.  
 Kelley-How-Thomson Co., Duluth, Minn.  
 Kelley Manufacturing Co., Houston, Tex.  
 Kiefaber, W. H., Co., Dayton, Ohio.  
 Knecht's Wholesale Lumbermen's Supply, Rapid City, S. Dak.  
 Laclede Steel Co., St. Louis, Mo.  
 Lampert Lumber Co., St. Paul, Minn.  
 Larson-Danielson Construction Co., Inc., LaPorte, Ind.  
 Leonhardt, H. E., Lumber Co., Oklahoma City, Okla.  
 Lewiston Hardware & Plumbing Supply Co., Lewiston, Maine.  
 Lorenz Co., Klamath Falls, Oreg.  
 Luthe Hardware Co., Des Moines, Iowa.  
 Mason Fence Co., Leesburg, Ohio.  
 McClung, C. M., & Co., Inc., Knoxville, Tenn.  
 McKee, R. D., Inc., Hagerstown, Md.

Mid-Continent Lumber Dealers Supply, Inc., Minneapolis, Minn.  
 Miller Bros. Hardware Co., Richmond, Ind.  
 Minot Builders Supply Co., Inc., Minot, N. Dak.  
 Missouri-Kansas-Texas Railroad Co., St. Louis, Mo.  
 Missouri Pacific Railroad Co., St. Louis, Mo.  
 Missouri Rolling Mill Corp., St. Louis, Mo.  
 Missouri State Highway Department, Jefferson City, Mo.  
 Montana Agricultural Experiment Station, Bozeman, Mont.  
 Montana Hardware Co., Butte, Mont.  
 Morehouse & Wells Co., Decatur, Ill.  
 Morley Bros., Saginaw, Mich.  
 Morley-Murphy Co., Green Bay, Wis.  
 Morrison-Merrill & Co., Salt Lake City, Utah.  
 National Steel Products Co., Houston, Tex.  
 Nebraska Department of Roads & Irrigation, Lincoln, Nebr.  
 New Bremen Hardware & Supply Co., New Bremen, Ohio.  
 Newberry's Hardware Co., Alliance, Nebr.  
 North Dakota Agricultural College, Fargo, N. Dak.  
 North Dakota State Highway Department, Bismarck, N. Dak.  
 Northern Hardware & Supply Co., Menominee, Mich.  
 Norton Hardware Co., Norton, Va.  
 Ohio, State of, Department of Highways, Columbus, Ohio.  
 Ohio State University, Columbus, Ohio.  
 Ohio Valley Hardware & Roofing Co., Evansville, Ind.  
 O'Neill-McNamara Hardware Co., Vicksburg, Miss.  
 Oregon State Highway Department, Salem, Oreg.  
 Ott-Heiskell Co., Wheeling, W. Va.  
 Page Steel & Wire Division, American Chain & Cable Co., Inc., Monessen, Pa.  
 Patzig Testing Laboratories, Des Moines, Iowa.  
 Peden Iron & Steel Co., Houston, Tex.  
 Pennsylvania Farm Bureau Cooperative Association, Harrisburg, Pa.  
 Pennsylvania Railroad, Philadelphia, Pa.  
 Piedmont Hardware Co., Danville, Va.  
 Pollak Steel Co., Cincinnati, Ohio.  
 Porcelain Steel Corp., Cleveland, Ohio.  
 Pritzlaff, John, Hardware Co., Milwaukee, Wis.  
 Rail Steel Bar Association, Chicago, Ill. (General support.)  
 Richards & Conover Hardware Co., Kansas City, Mo.  
 Richmond Hardware Co., Richmond, Va.  
 Rockingham Co-operative Farm Bureau, Inc., Harrisonburg, Va.  
 Ross, H. W., Lumber Co., Tea, S. Dak.  
 St. Louis Testing Laboratories, St. Louis, Mo.  
 Salt Lake Hardware Co., Salt Lake City, Utah.  
 San Jose Hardware Co., San Jose, Calif.  
 Scherer, O. J., Co., Henderson, Nev.  
 Schlatter Hardware Co., Inc., Fort Wayne, Ind.  
 Schoeneman Bros. Co., Hawarden, Iowa.  
 Sears, Roebuck & Co., Chicago, Ill.  
 Sechtman Hardware Co., Inc., Hartford, Conn.  
 Sessinghaus & Ostergaard, Inc., Erie, Pa.  
 Shapleigh Hardware Co., St. Louis, Mo.  
 Shultz Seed Co., Inc., Olney, Ill.  
 Simonson Cash Supply, Fargo, N. Dak.  
 Smith, F. P., Wire & Iron Works, Chicago, Ill.  
 Southern Testing Laboratories, Inc., Birmingham, Ala.  
 Southwest Steel Rolling Mills, Los Angeles, Calif.  
 Southwestern Steel Products Co., Houston, Tex.  
 Standard Lumber Co., Winona, Minn.  
 Standard Supply & Hardware Co., Inc., New Orleans, La.  
 Stauffer, Eshleman & Co., Ltd., New Orleans, La.  
 Steel & Wire Products Co., Baltimore, Md.  
 Stichter Hardware Co., Inc., Reading, Pa.  
 Stockhoff, Wm., & Son, Louisville, Ky.  
 Stowe Hardware & Supply Co., Kansas City, Mo.  
 Stratton & Terstegge Co., Louisville, Ky.  
 Strevell Paterson Hardware Co., Salt Lake City, Utah.  
 Sweet's Steel Co., Williamsport, Pa.  
 Tenk Hardware Co., Quincy, Ill.  
 Tennessee, University of, College of Agriculture, Knoxville, Tenn.  
 Texas Highway Department, Austin, Tex.  
 Turner Supply Co., Mobile, Ala.  
 Underwood Builders Supply Co., Mobile, Ala.  
 United Co-Operatives, Inc., Alliance, Ohio.  
 United Hardware & Supply Co., Titusville, Pa.  
 Wabash Railroad Co., St. Louis, Mo.  
 Weakley-Watson-Miller Hardware Co., Brownwood, Tex.  
 Weed & Co., Buffalo, N. Y.  
 West Virginia Steel & Manufacturing Co., Huntington, W. Va.  
 Western Metal Supply Co., San Diego, Calif.  
 Wheeler Lumber Bridge & Supply Co., Des Moines, Iowa.  
 Williams Hardware Co., Fort Smith, Ark.  
 Williamson, Ben & Co., Inc., Ashland, Ky.  
 Woodward Hardware Co., Cairo, Ill.  
 Wright & Wilhelm Co., Omaha, Nebr.  
 Wyeth Co., St. Joseph, Mo.

#### UNITED STATES GOVERNMENT

Agriculture, United States Department of,  
 Division of Procurement and Property Management, Washington, D. C.  
 Army, Department of the, Standards Branch, Washington, D. C.  
 Justice, Department of, Bureau of Prisons, Washington, D. C.







